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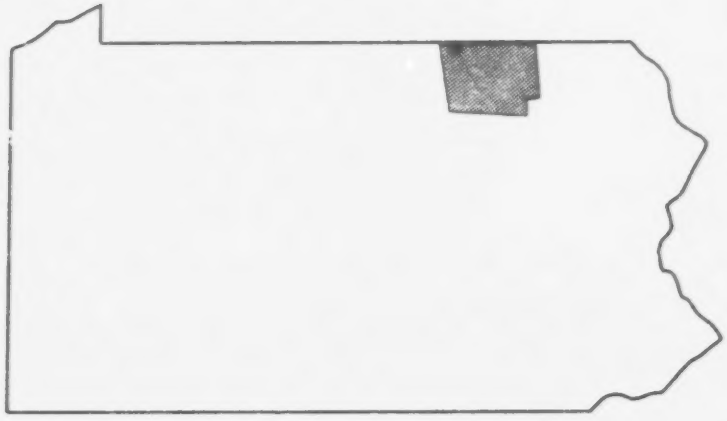
FLOOD INSURANCE STUDY

TOWNSHIP OF SOUTH CREEK, PENNSYLVANIA
BRADFORD COUNTY



SEPTEMBER 5, 1990

Federal Emergency Management Agency

COMMUNITY NUMBER - 421105

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision (LOMR) process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Flood Insurance Study Effective Date: September 5, 1990

Flood Insurance Study Revised:

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FLOOD INSURANCE STUDY
TOWNSHIP OF SOUTH CREEK, BRADFORD COUNTY, PENNSYLVANIA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Township of South Creek, Bradford County, Pennsylvania, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by the Baltimore District of the U. S. Army Corps of Engineers (COE), for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-86-E-2226, Project Order No. 27. This study was completed in September 1988.

1.3 Coordination

On December 12, 1985, an initial Consultation and Coordination Officer's (CCO) meeting was held with representatives of FEMA, the COE (the study contractor), Bradford County, and the township to determine the streams to be studied by detailed methods. During the course of the study, various Federal, State, and local agencies were contacted to obtain available mapping, survey data, flood history information, and other hydrologic data. Those contacted included the following: the Township of South Creek, Bradford County, the Pennsylvania Departments of Transportation and Environmental Resources, the U. S. Geological Survey (USGS), the Soil Conservation Service (SCS), and the Susquehanna River Basin Commission (SRBC).

On September 26, 1989, a final CCO meeting was held with representatives of FEMA, the study contractor, and the township to review the results of the study.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Township of South Creek, Bradford County, Pennsylvania. The Borough of South Creek is located within the Township of South Creek, but is not included in this study. The area of study is shown on the Vicinity Map (Figure 1).

South Creek was studied by detailed methods from the Pennsylvania State Line to a point approximately 0.7 mile upstream of an abandoned railroad bridge. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction through September 1993.

The following streams were studied by approximate methods: Roaring Run; Buck Creek; unnamed tributaries to Buck Creek and Roaring Run; and the remaining portions of South Creek. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the Township of South Creek.

2.2 Community Description

The Township of South Creek is located in the northern portion of Bradford County in northeast Pennsylvania, approximately 50 miles northwest of the City of Lock Haven. It is bordered by the Township of Ridgebury to the east; the Township of Springfield to the southeast; the Township of Columbia to the southwest; the Township of Wells to the west; the Township of Southport, New York, to the northwest; and the Township of Ashland, New York, to the northeast.

South Creek originates in the Township of Columbia and flows towards the north through the Townships of Columbia and South Creek and Chemung County, New York, before it joins the Chemung River near Elmira. South Creek has a drainage area of approximately 32.8 square miles at the Pennsylvania State Line.

2.3 Principal Flood Problems

The major source of flooding within the Township of South Creek is South Creek. There are no gages located on South Creek within the township, and no data are available to provide information about the magnitude and severity of past flooding in the area. There are two USGS gages located outside the township that have long periods of record (gage No. 01531500, located on the Susquehanna River at

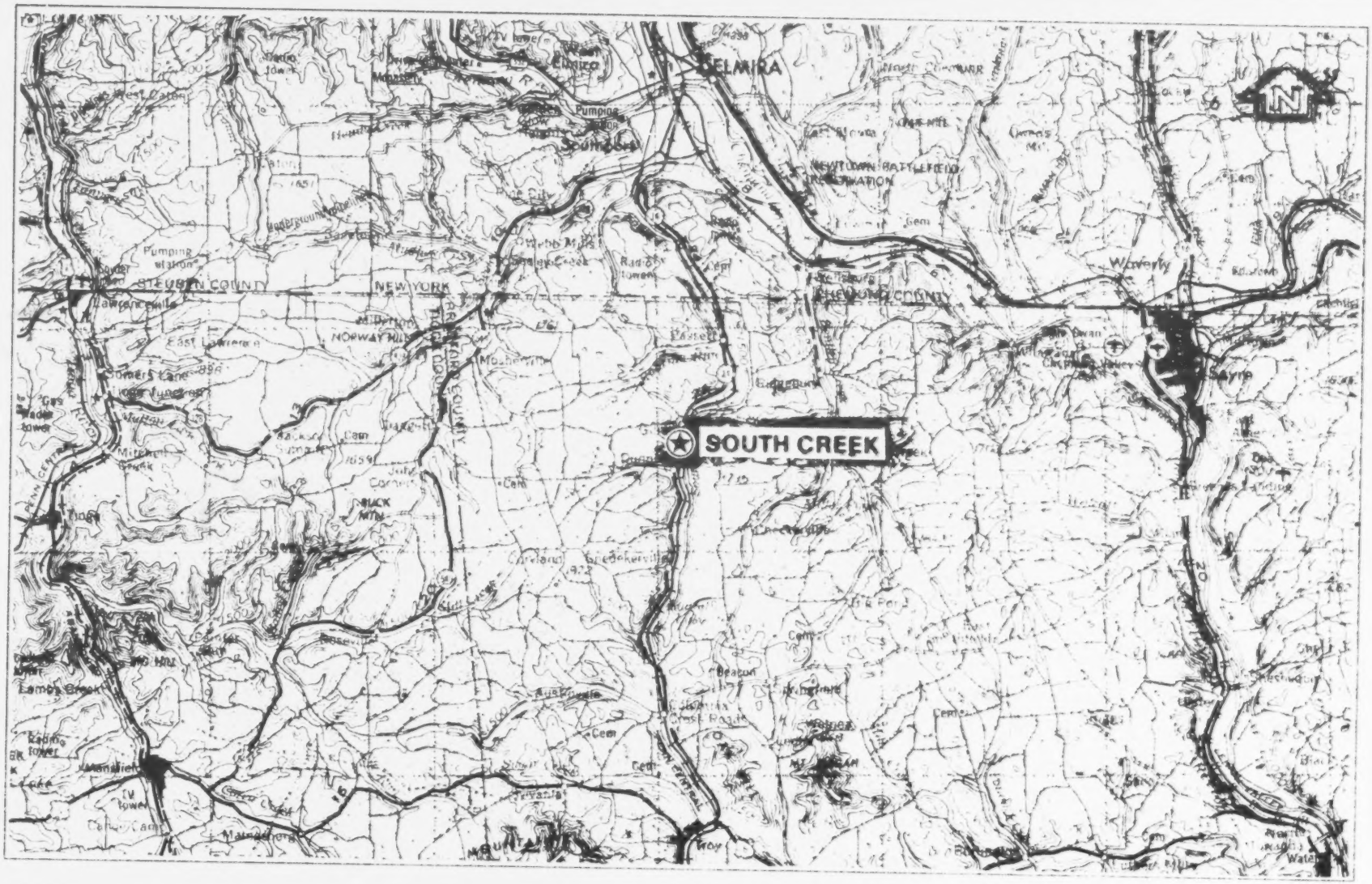


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA

(BRADFORD CO.)

APPROXIMATE SCALE

4 0 4 8 12 MILES

VICINITY MAP

Bridge Street bridge in Towanda; and gage No. 01532000, located on Towanda Creek near Monroeton). According to data from these gages, the flood of June 24, 1972 is the flood of record for the area. No attempts have been made to determine the return frequency of the June 24, 1972 flood for this area.

2.4 Flood Protection Measures

No local flood protection measures exist or are currently planned for the Township of South Creek.

3.0 ENGINEERING METHODS

For the flooding source studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for the flooding source studied in detail affecting the community.

Hydrologic analyses for South Creek were prepared using the regional flood-frequency method developed by the COE (Reference 1).

A summary of the drainage area-peak discharge relationships for the stream studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGE (cfs) 100-YEAR
SOUTH CREEK		
At Pennsylvania State Line	32.8	12,800

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the source studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Cross sectional data for the backwater analyses were obtained from field survey and included stream and floodplain cross sections and structural geometry of all bridges, culverts, and other hydraulic structures.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1) and the Flood Insurance Rate Map (Exhibit 2) where applicable.

Water-surface elevations of floods of the selected recurrence intervals were computed using the COE HEC-2 step-backwater computer program (Reference 2). The starting water-surface elevation for South Creek was computed by the slope/area method. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. The results of the water-surface computations are tabulated for the selected cross sections (Table 2).

Channel roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and based on field reconnaissance of the stream and floodplain areas (References 3 and 4). Channel "n" values for South Creek ranged from 0.030 to 0.045, and overbank "n" values ranged from 0.045 to 0.090.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

FLOODING SOURCE		STREAM CHANNEL			LEFT OVERBANK			RIGHT OVERBANK			100 YEAR FLOOD WATER SURFACE ELEVATION (ft. NGVD)
CROSS SECTION	DISTANCE[1] (FT.)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT./SEC.)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT./SEC.)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT./SEC.)	
South Creek											
A	0	34	3,840	11.84	223.24	6,350	4.47	193.42	2,609	3.32	1,084.0
B	1,300	46	3,976	8.12	232.46	3,879	2.84	431.78	4,945	2.63	1,088.30
C	2,900	16	2,371	16.92	13.58	314	7.39	536.79	10,115	5.72	1,095.47
D	4,600	33	2,946	9.71	24.34	537	4.76	556.78	1,317	4.66	1,107.60
E	6,700	59	3,871	4.22	599.02	7,335	2.09	73.49	1,594	2.10	1,127.19
F	7,300	24	2,459	7.40	648.72	9,841	3.17	30.84	500	2.55	1,127.47
G	8,800	46	6,647	10.99	135.44	2,284	3.78	208.06	3,868	3.30	1,129.0
H	10,400	18	913	3.39	182.18	2,067	1.71	569.64	9,820	1.89	1,131.71
I	12,400	44	3,416	5.03	188.51	1,536	1.71	711.80	7,848	1.39	1,132.66
J	13,700	38	6,299	11.35	142.05	2,283	3.25	187.13	4,218	3.47	1,133.30
K	15,200	31	3,317	6.08	375.97	5,965	2.23	255.73	3,518	1.77	1,135.79
L	17,300	35	1,862	3.25	182.74	1,602	1.25	777.25	9,337	1.31	1,136.51
M	18,200	20	1,068	3.54	220.52	2,965	1.68	756.92	8,767	1.48	1,136.85
N	18,600	19	979	3.16	451.79	5,736	1.38	629.37	6,085	1.24	1,136.94
O	20,600	20	844	3.00	910.93	9,902	1.38	316.17	2,054	1.25	1,137.51
P	22,300	26	2,107	6.74	764.43	10,244	2.41	57.25	450	2.19	1,137.91
Q	24,400	35	4,876	12.84	386.05	7,245	4.80	39.93	678	4.57	1,142.69
R	26,100	25	2,412	6.37	471.28	9,032	2.89	63.98	1,356	2.52	1,155.01
S	27,100	55	4,015	7.11	655.37	8,031	3.04	51.25	754	2.83	1,156.39
T	28,700	18	2,732	14.79	752.78	6,417	3.20	226.46	3,651	4.21	1,166.59
U	29,400	34	4,913	14.39	585.68	7,738	4.03	9.20	149	3.46	1,174.78
V	30,300	26	2,027	12.09	663.39	9,544	4.54	47.10	1,229	5.45	1,182.87
W	31,900	23	3,186	17.12	507.14	9,497	5.64	6.31	117	4.58	1,203.98

[1]Stream distance in feet above Pennsylvania-New York State line

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA
(BRADFORD CO.)

REGULATORY DATA

SOUTH CREEK

FLOODING SOURCE		STREAM CHANNEL			LEFT OVERBANK			RIGHT OVERBANK			100 YEAR FLOOD WATER SURFACE ELEVATION (ft. NGVD)
CROSS SECTION	DISTANCE (FT.)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT./SEC.)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT./SEC.)	WIDTH (FT.)	DISCHARGE (CFS)	MEAN VELOCITY (FT./SEC.)	
South Creek (continued)											
X	33,500	26	4,202	18.111	293.26	7,209	5.71	26.55	1,390	7.74	1,223.25
Y	34,200	19	3,286	12.41	567.90	6,152	2.80	67.76	3,362	5.89	1,241.06
Z	35,000	233	9,357	2.67	626.96	3,161	0.73	48.83	881	0.72	1,242.57
AA	36,600	811	12,079	1.05	125.60	474	0.42	95.36	247	0.30	1,242.72
AB	37,900	62	7,038	7.83	250.68	3,683	2.15	147.00	2,079	2.60	1,242.51

[1]Stream distance in feet above Pennsylvania-New York State line

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA
(BRADFORD CO.)

REGULATORY DATA

SOUTH CREEK

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2 percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the stream studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24,000 with a contour interval of 20 feet (Reference 5).

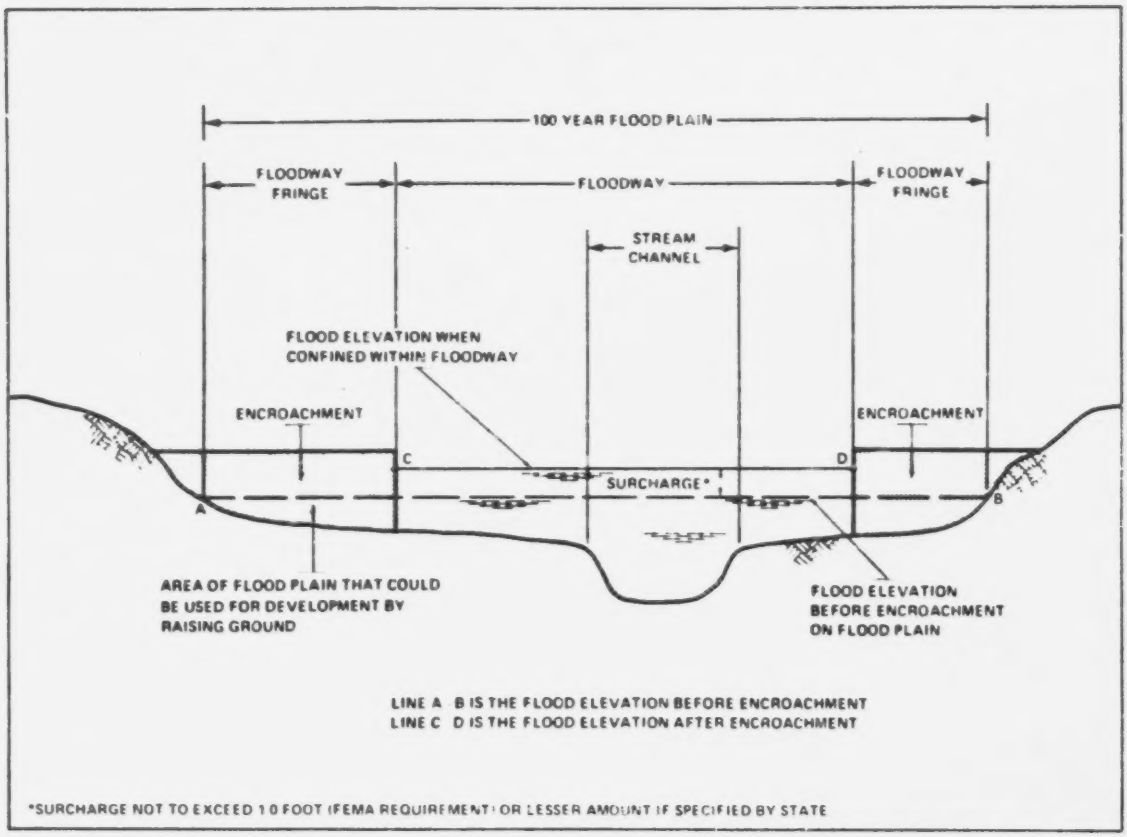
For the streams studied by approximate methods, the 100-year floodplain boundaries were delineated using the Flood Hazard Boundary Map for the Township of South Creek (Reference 6).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FLOODWAY SCHEMATIC Figure 2

No floodways were calculated as part of this study.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

7.0 OTHER STUDIES

Flood Insurance Studies have been prepared for the Townships of Wells, Columbia, Springfield, and Ridgebury; and the Township of Southport, New York (References 7, 8, 9, 10, and 11). The results of this study are in exact agreement with the results of those studies.

A Flood Insurance Study has been prepared for the Township of Ashland, New York (Reference 12). The results of this study are in general agreement with the results of that study.

Due to its more detailed nature, this study supersedes the Flood Hazard Boundary Map for the Township of South Creek (Reference 6).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Liberty Square Building (Second Floor), 105 South Seventh Street, Philadelphia, Pennsylvania 19106.

9.0 BIBLIOGRAPHY AND REFERENCES

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2. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Generalized Computer Program, Davis, California, April 1984.

3. Ven Te Chow, Open-Channel Hydraulics, New York, McGraw-Hill, 1959.

4. U. S. Department of the Interior, Geological Survey, Water-Supply Paper 1849, Roughness Characteristics of Natural Channels by Harry H. Barnes, Jr., Washington, D. C. 1967.

5. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 Feet:

6. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Township of South Creek, Bradford County, Pennsylvania, July 23, 1976.

7. Federal Emergency Management Agency, Flood Insurance Study, Township of Wells, Bradford County, Pennsylvania, Washington, D. C., September 5, 1990.

8. Federal Emergency Management Agency, Flood Insurance Study, Township of Columbia, Bradford County, Pennsylvania, Washington, D. C., September 1, 1986.

9. Federal Emergency Management Agency, Flood Insurance Study, Township of Springfield, Bradford County, Pennsylvania, Washington, D. C., May 1, 1986.

10. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Township of Ridgebury, Bradford County, Pennsylvania, Washington, D. C., April 1, 1981.

11. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Township of Southport, Chemung County, New York, Washington, D. C., May 1, 1980.

12. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Township of Ashland, Chemung County, New York, Washington, D. C., January 16, 1980.

EXHIBIT 3 - ELEVATION REFERENCE MARKS

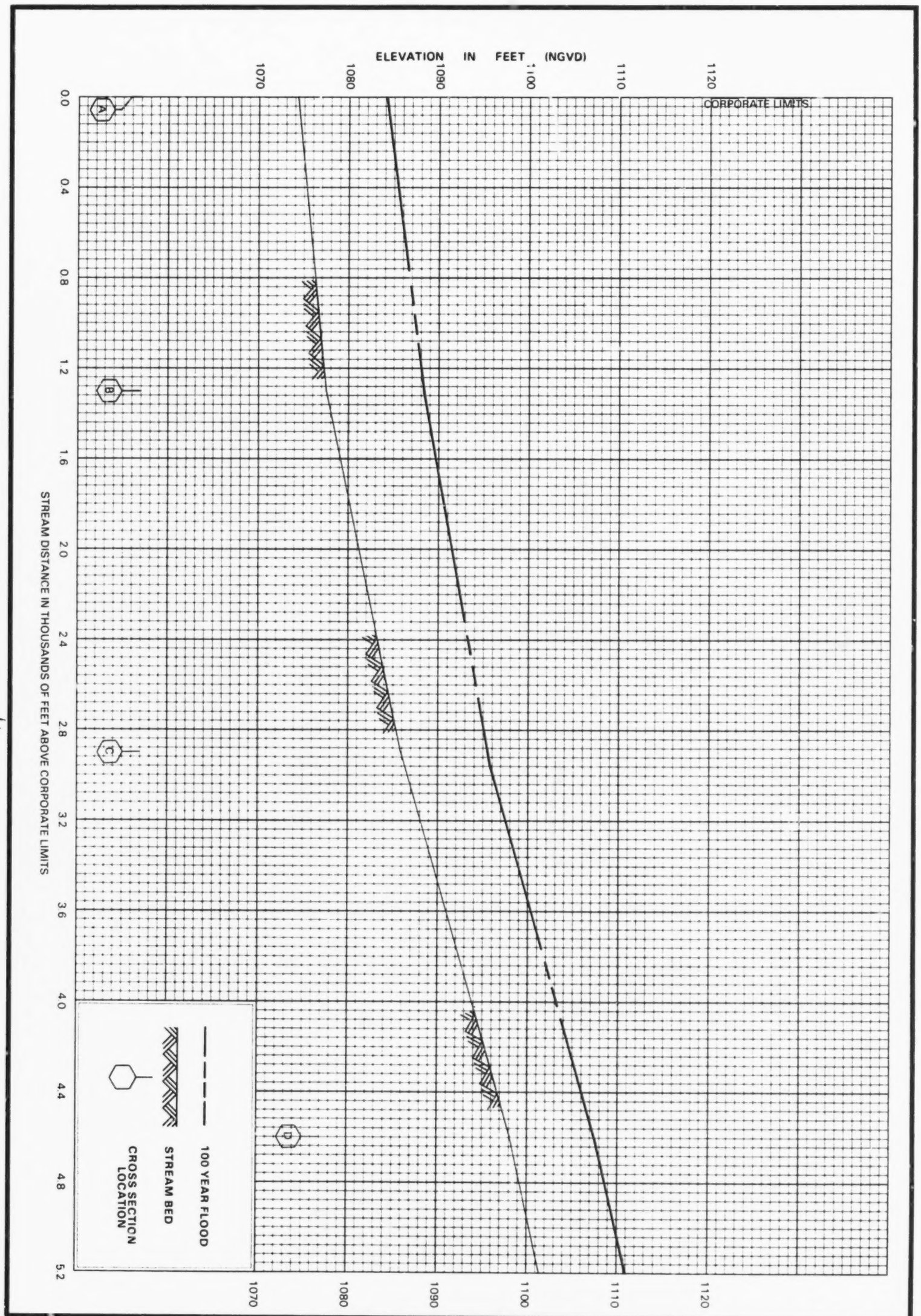
Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 1	05	1,094.25	Northeast corner of first step of front porch of 1.5-story aluminum-sided house, approximately 0.8 mile northeast of Fassett, approximately 70 feet south of northeast corner of house, and approximately 37 feet southwest of utility pole No. 11S-Z1.
RM 2	05	1,126.24	PDH disk, stamped G411 1983, in Fassett, on southeast corner of bridge on State Route 14 over South Creek, approximately 25 feet east of centerline of State Route 14, approximately 20 feet south of centerline of South Creek, and approximately 53 feet east of utility pole.
RM 3	05	1,140.08	X cut in northeast corner of concrete catch basin, approximately 0.3 mile south of Fassett, approximately 24 feet west of centerline of State Route 14, approximately 15 feet south of utility pole (ATT) No. 4660, approximately 54 feet north of blacktop private drive.
RM 4	05	1,184.08	X cut in southeast corner of concrete headwall, approximately 0.8 mile south of Fassett, approximately 22 feet west of centerline of State Route 14, approximately 88 feet north of utility pole No. 684-B18, approximately 66 feet southwest of utility pole No. 11S-366.
RM 5	05	1,208.55	X cut in southeast corner of concrete catch basin, approximately 1.1 miles south of Fassett, approximately 27 feet southeast of southeast corner of one-story white concrete block house, approximately 23 feet north of private drive, and approximately 31 feet west of centerline of State Route 14.

EXHIBIT 3 - ELEVATION REFERENCE MARKS - continued

Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 6	05	1,131.84	X cut in southwest concrete approach slab of wooden deck steel girder one-lane bridge on Farm Road over South Creek, approximately 1.5 mile south of Fassett, approximately seven feet south of centerline of Farm Road, approximately five feet north of utility pole, and approximately 116 feet east of 2.5-story wood frame house.
RM 7	05	1,170.07	PSHD disk, stamped J411 1983, on southeast corner of bridge on State Route 14 over unnamed tributary to South Creek, approximately 0.9 mile northeast of Gillett, approximately 15 feet southeast of centerline of State Route 14, approximately 29 feet southwest of 2.5-foot-diameter tree, approximately 149 feet northeast of northwest corner of 17-foot by 17-foot wooden shed, adjacent to two barns.
RM 8	05	1,143.66	PDH disk, unstamped, on southeast corner of bridge on State Route 14 over Blodgett Hollow, approximately 0.8 mile northeast of Gillett, approximately 18 feet southeast of centerline of State Route 14, approximately 173 feet northeast of edge of small pond, and approximately 100 feet east of one-foot-diameter tree.
RM 9	05	1,153.15	X cut in northwest corner of wooden deck one-lane bridge in Gillett, approximately 13 feet north of centerline of dirt road, approximately 27 feet west of centerline of South Creek, and approximately 85 feet east of southeast corner of mobile home.
RM 10	10	1,165.39	PDH disk, unstamped, in northeast corner of wood deck bridge on Legislative Route 08058 over South Creek, in Gillett, approximately 12 feet north of dirt road, approximately 63 feet southwest of southwest corner of front porch of two-story house, approximately 49 feet west-southwest of 4.5-foot-diameter tree.

EXHIBIT 3 - ELEVATION REFERENCE MARKS - continued

Reference Mark	FIRM Panel	Elevation (Feet NGVD)	Description of Location
RM 11	10	1,184.77	X cut in southwest corner of top front porch step of 1.5-story house, approximately 0.6 mile south of Gillett, approximately 53.5 feet east of centerline of State Route 14, approximately 14 feet north of southwest corner of house, approximately 114 feet north of drive leading to baseball field east of house.
RM 12	10	1,238.09	X cut in southwest corner of railroad bridge over South Creek, in Dunning, approximately 7.5 feet west of centerline of railroad track bed (tracks have been removed), approximately 16.5 feet west of east edge of bridge, approximately 19.5 feet south of centerline of South Creek; bridge is immediately upstream of confluence of small unnamed tributary to South Creek.
RM 13	10	1,244.62	X cut in southeast corner of first step of side entrance to 4-story gray cinder block barn, approximately 0.5 mile south of Dunning, approximately 266 feet east of centerline of State Route 14, approximately 75 feet west of southeast corner of building, and approximately 177 feet northwest of utility pole No. 118-28.



FEDERAL EMERGENCY MANAGEMENT AGENCY

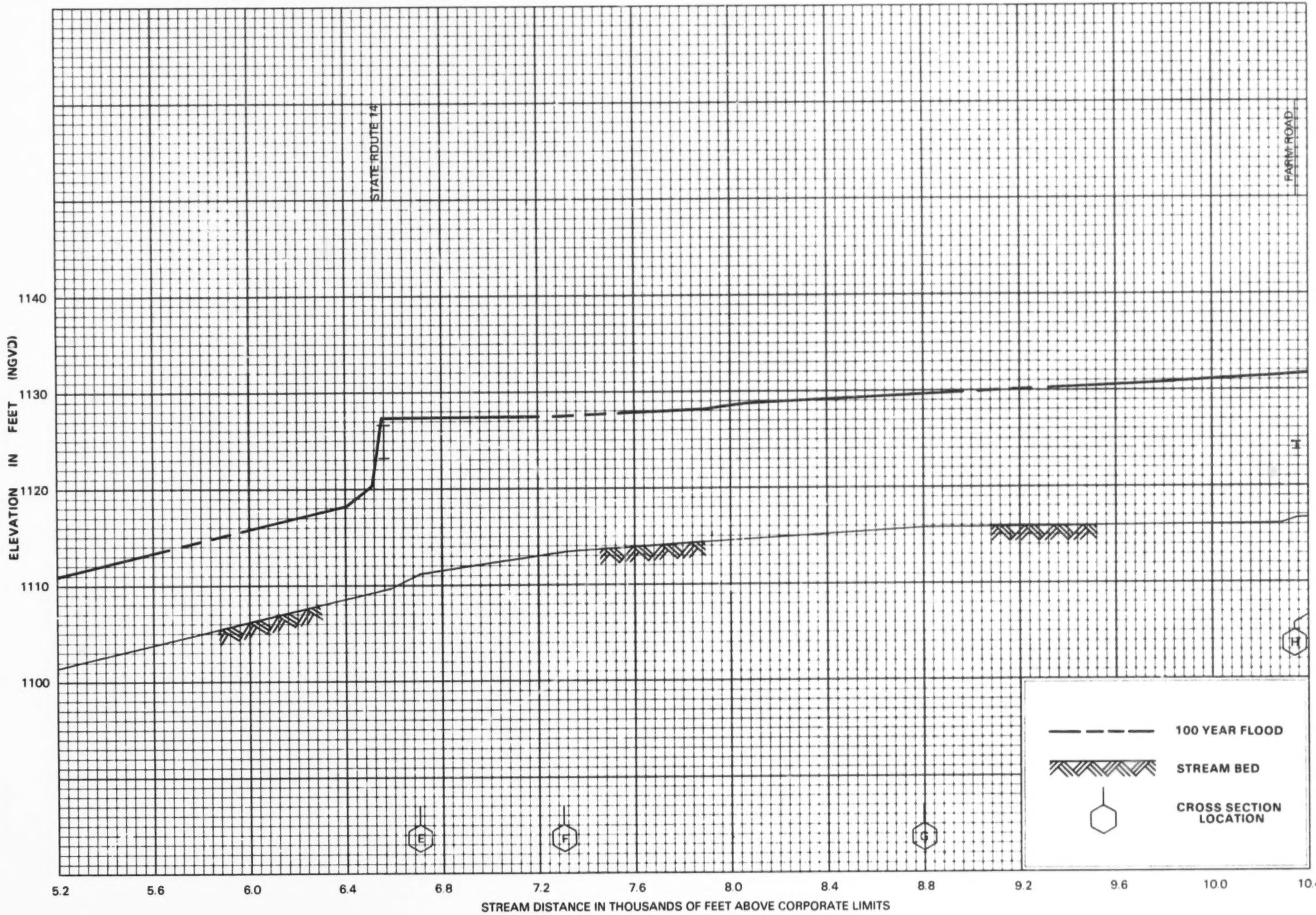
TOWNSHIP OF SOUTH CREEK, PA

(BRADFORD CO.)

FLOOD PROFILES

SOUTH CREEK

01P



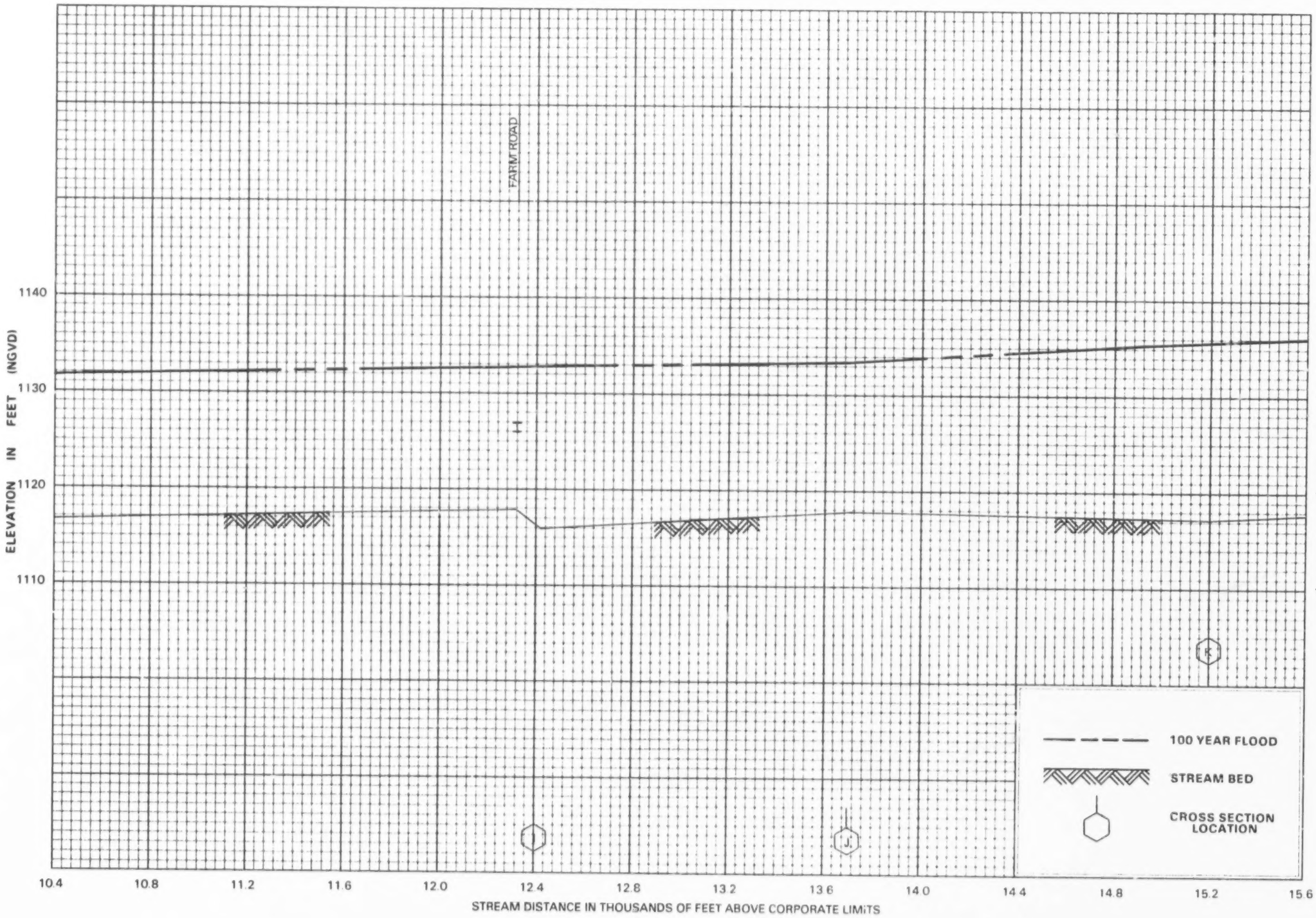
FLOOD PROFILES

SOUTH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA
(BRADFORD CO.)

02P



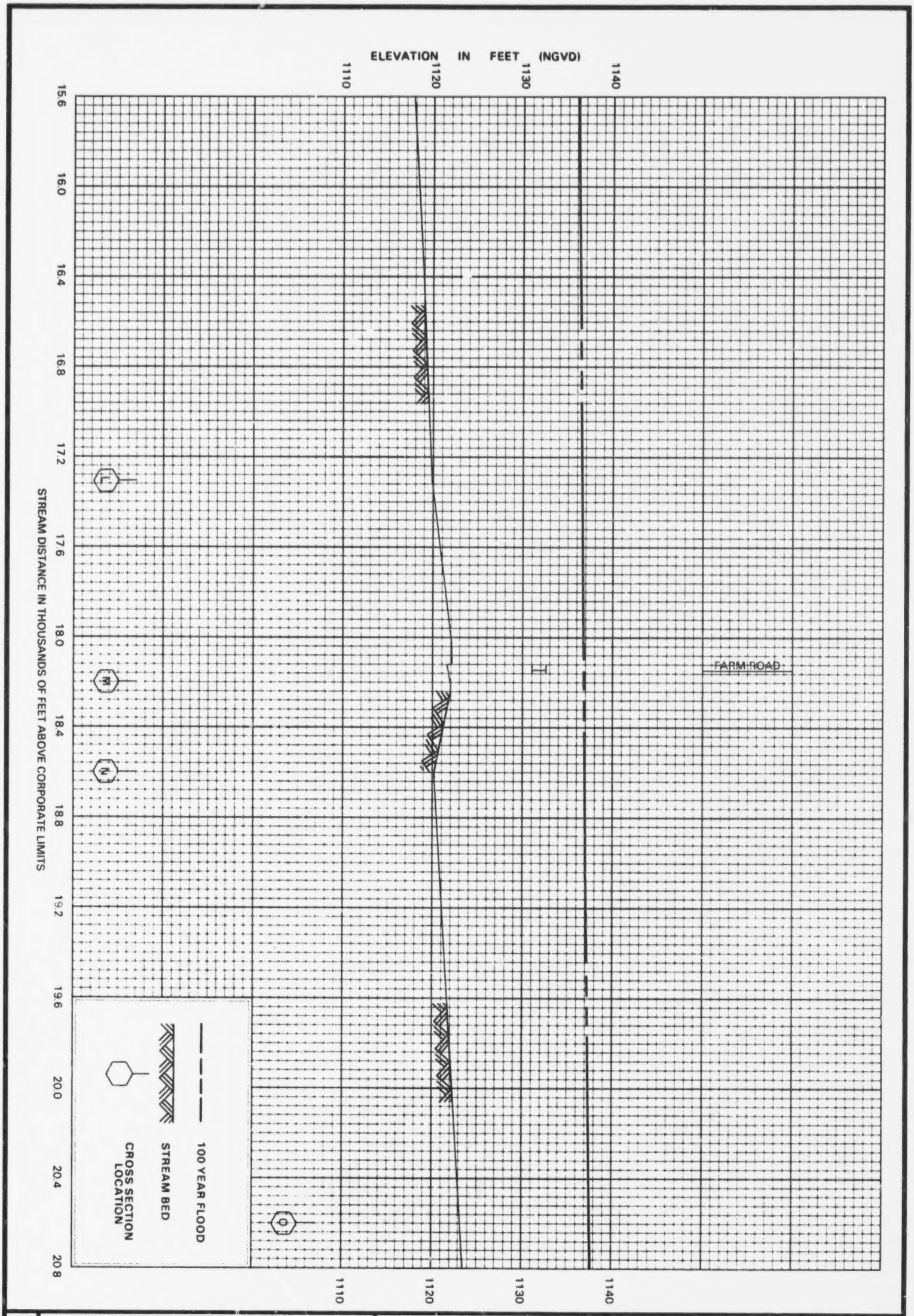
FLOOD PROFILES

SOUTH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA
(BRADFORD CO.)

03P



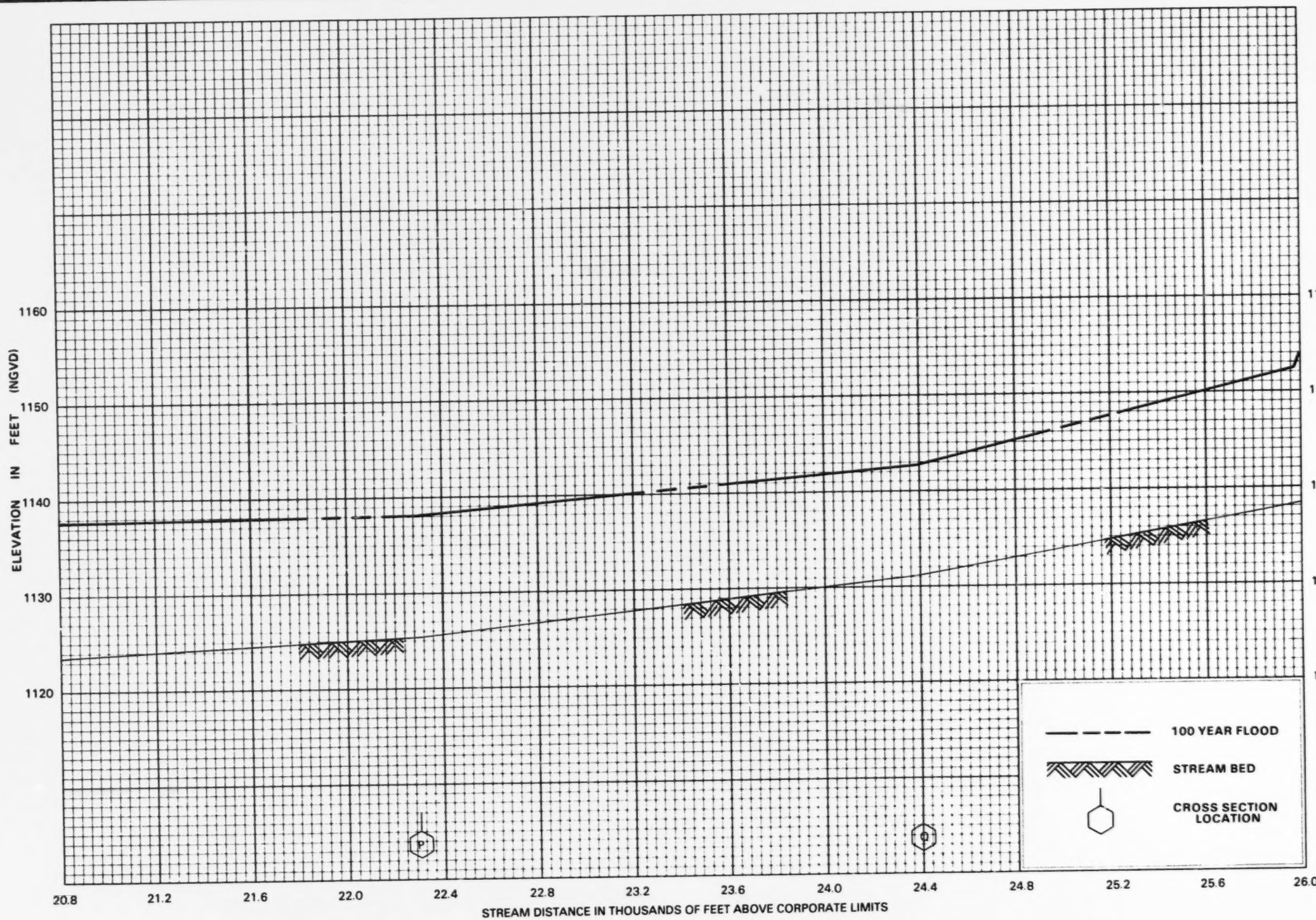
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA
(BRADFORD CO.)

FLOOD PROFILES

SOUTH CREEK

04P



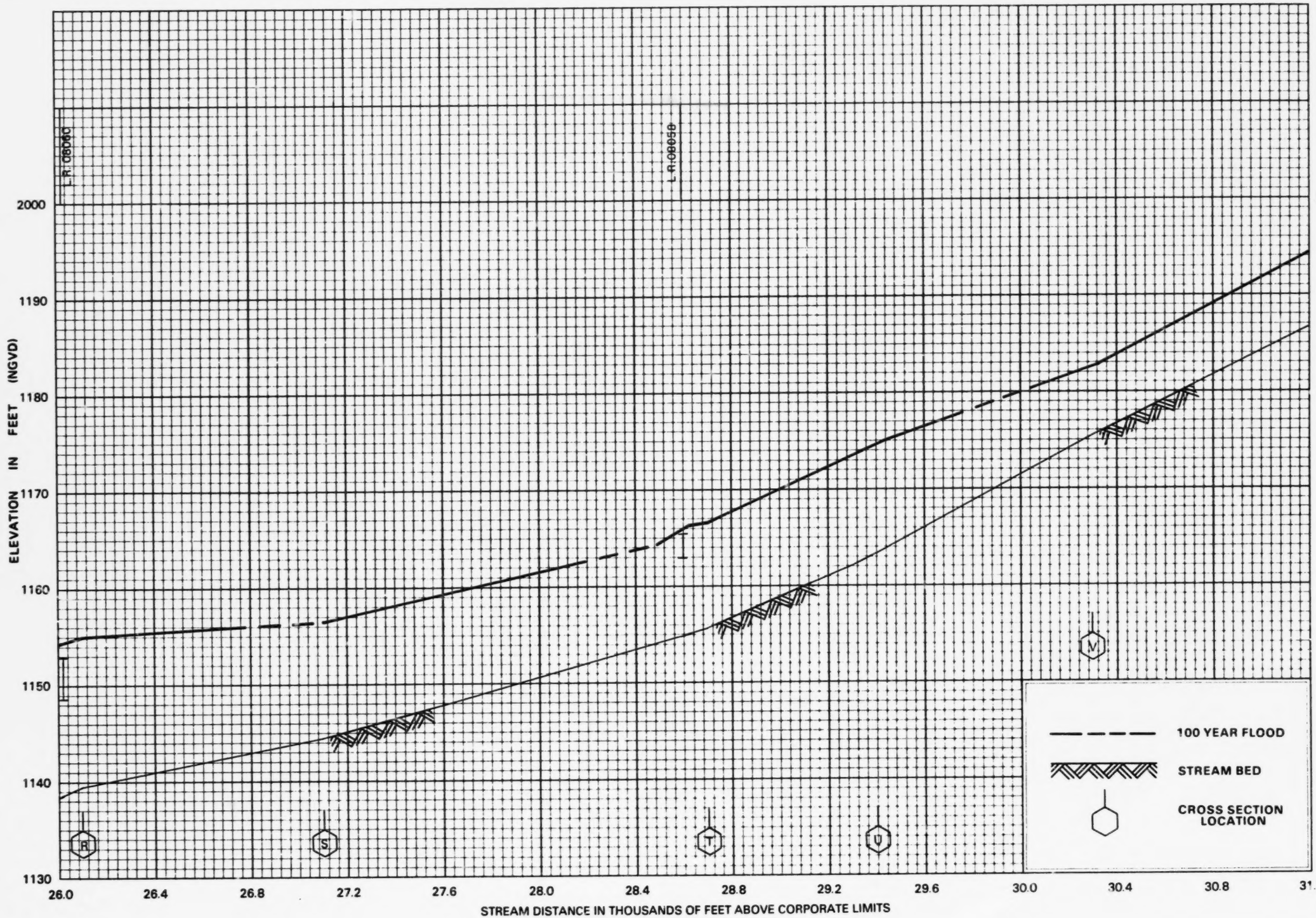
FLOOD PROFILES

SOUTH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA
(BRADFORD CO.)

05P



FLOOD PROFILES

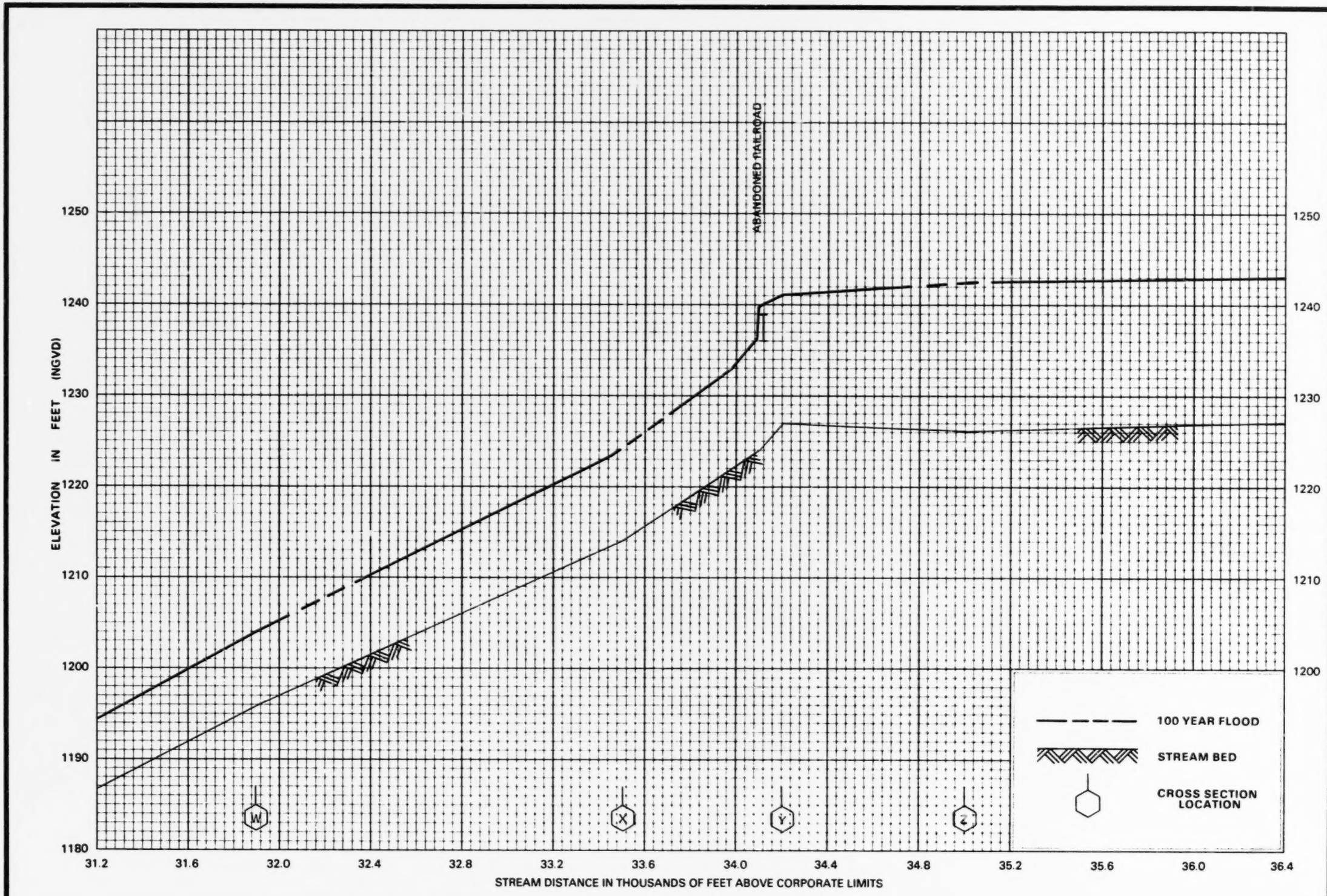
SOUTH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA

(BRADFORD CO.)

06P



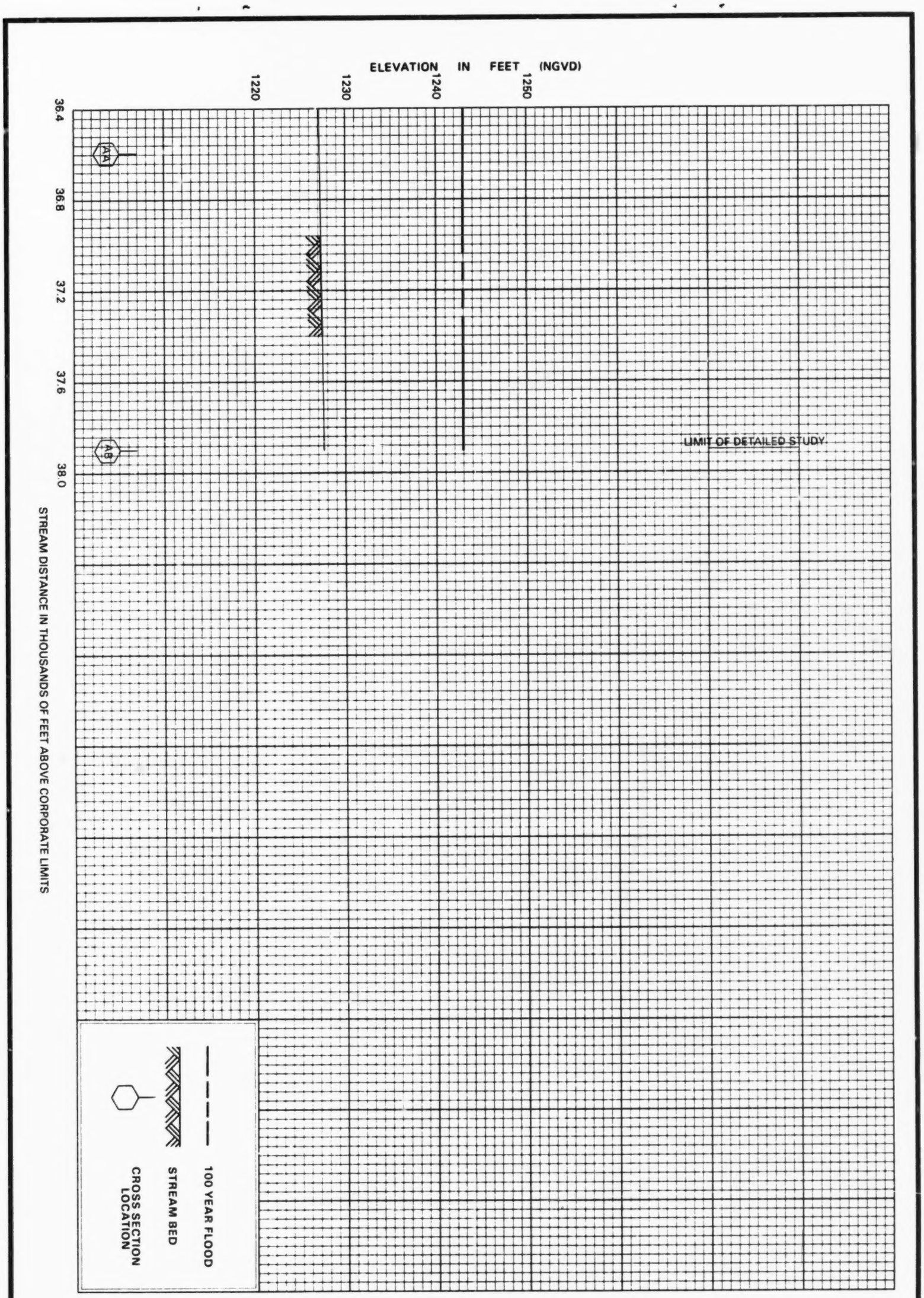
FLOOD PROFILES

SOUTH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA
(BRADFORD CO.)

07P



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FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF SOUTH CREEK, PA
(BRADFORD CO.)

08P

FLOOD PROFILES

SOUTH CREEK